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**Application for an
Authority to Construct and a
Permit to Operate for Upgraded
Emission Control Systems at the
Shredder**

Oakland, CA

prepared for:

Schnitzer Steel Industries, Inc.

February 2016

prepared by:

Sierra Research
1801 J Street
Sacramento, California 95811
(916) 444-6666

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Schnitzer Steel Industries, Inc.
1101 Embarcadero West; Oakland, CA**

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I. SUMMARY

Schnitzer Steel Industries, Inc. (Schnitzer Steel) requests an Authority to Construct (ATC) and Permit to Operate (PTO) from the Bay Area Air Quality Management District (District) for the installation of upgraded emission control equipment at its metal shredder located at 1101 Embarcadero West; Oakland, CA. The proposed upgraded emission control equipment includes an enclosure and two venturi scrubbers.

The project will reduce PM emissions and will not affect emissions of other pollutants. The new control device is subject to permit review per BAAQMD Rule 2-1-301. Since there will be no increase in emissions, the project is not subject to District Best Available Control Technology (BACT), offset, or risk assessment requirements. For the same reason, the project is not subject to federal Maximum Achievable Control Technology (MACT) or Prevention of Significant Deterioration (PSD) requirements. The proposed upgraded emission control system for the shredder will be operated to minimize visible emissions and will comply with Regulation 6.

II. PROJECT DESCRIPTION

Schnitzer Steel Industries, Inc. (Schnitzer Steel) operates a scrap metal recovery, shredding, and recycling business in Oakland, California (Oakland facility). To further control emissions from the shredder and the Joint Products Plant (JPP), Schnitzer Steel is proposing to install the following upgraded emission control systems at the Oakland facility:

- Upgraded emission control equipment at the shredder;
- New particulate matter (PM) emission control equipment at the Joint Product Plant (JPP); and
- A small floorless building over the shredder's magnetic drum separators.

Moreover, Schnitzer Steel will remove the existing emergency standby diesel generator set from the facility.

The installation of the upgraded emission control equipment at the JPP will qualify for the exemption under BAAQMD Rule 2-1-115 Section 1.4, and the installation of the small floorless building at the magnetic separators will qualify for the exemption under BAAQMD Rule 2-1-113.2.3. An analysis supporting these exemptions is being submitted to the District under separate cover.

Schnitzer Steel is submitting this application requesting an Authority to Construct (ATC) and Permit to Operate (PTO) from the District for the installation of upgraded emission abatement devices at the Oakland facility shredder. No application is required for the construction of the JPP emission control equipment or the floorless building over the magnetic drum separators.

Permit application forms for the proposed emission control system upgrade for the shredder are included as Appendix A. We are also including a check for \$1,418, for the filing fee and initial fee.¹

¹ Since there is no expected increase in TAC/HAP emissions from the proposed upgraded abatement devices, a risk screening fee and toxic surcharges are not applicable, and the abatement devices are exempt from PTO fees.

A. Applicant's Name and Business Description

Name of Applicant: Schnitzer Steel Industries, Inc. dba Schnitzer Steel Products Company

Mailing Address: P.O. Box 747
Oakland, CA 94604

Facility Location: 1101 Embarcadero West
Oakland, CA 94607

General Business: Metal Recycling

Submitting Officials: Bruce Rieser
Regional Director

and

Scott B. Sloan
Vice President – Environmental
Schnitzer Steel Industries
(425) 420-1863

Facility Operator: Schnitzer Steel Industries, Inc.

Estimated
Construction Date: Upon the issuance of permit

B. Type of Application

This is an application for an Authority to Construct (ATC) and Permit to Operate (PTO) for upgraded emission abatement devices for the shredder at the Oakland facility.

III. BACKGROUND

Recyclable material comprised of heavy iron, auto bodies, appliances, and other light iron is delivered to the Oakland facility by both rail and truck at the main commercial entrances where it is inspected and sorted. There are also small quantities of scrap metal delivered through the “Peddler Entrance” used for smaller vehicles.

At the shredder, material consisting of light iron products, including auto bodies, appliances, and other recyclable light steel materials, are shredded. Shredded material is then carried by conveyor under magnetized drums which attract the ferrous materials and separate them from the nonferrous materials. The remaining intermediate non-ferrous stream is known as non-ferrous raw (NFR), and consists of both non-ferrous metal and non-metallic materials. The NFR is transferred to the Joint Products Plant (JPP) where non-ferrous metal is further sorted, by metal type, from non-metallic materials. The non-metallic residue from the JPP is treated with chemicals and shipped offsite for use as alternate daily landfill cover.

In addition to bulk scrap metal, recyclable material consisting of non-bulk ferrous/nonferrous metal scrap is also received at the Oakland facility at the Peddler Gate. Material received at the peddler gate is inspected, weighed, sorted, and segregated by hand into bins by scrap type, and is baled at the non-ferrous recovery building and/or stored in cargo containers for transport by truck offsite.

Major operations at the Oakland facility include the following:

- Shredding of light iron products, including auto bodies, appliances, and other recyclable light steel materials, at the shredder;
- Preparation and sorting of NFR at the JPP;
- Re-sizing of heavy steel products not suitable for processing in the shredder
- Temporary storage and transfer of finished recycled metal products and shredder residue into various storage piles; and
- Shipment of material offsite via ship and truck.

A. Proposed Modifications at the Oakland Facility

To more effectively control emissions from the shredder and the JPP, Schnitzer Steel has proposed to install the following upgraded and additional emission control systems at the Oakland facility:

- Upgraded emission control equipment at the shredder;
- New emission control equipment at the JPP; and
- A small floorless building over the shredder’s magnetic drum separators.

Figures showing the locations of the proposed new and upgraded structures are included in Appendix B. In addition to the new installations mentioned above, Schnitzer Steel will remove the existing emergency diesel generator set from the Oakland facility.

B. Equipment and Process Description

1. Shredder

Schnitzer Steel installed the shredder at the Oakland facility in 2006, and it became operational on November 1, 2006. The initial PTO for the shredder was issued by the District on April 26, 2007. The initial PTO requires operation of the existing emission control system which utilizes a fan and ducting to vent emissions directly from the shredder hammermill box. Vented emissions are controlled using a wet scrubber, mist eliminator and moving belt dry filtering system. Schnitzer Steel submitted an application to the BAAQMD on September 14, 2007,² requesting that the throughput limit of the shredder be increased to 720,000 tons (in any calendar year).³

The shredder (S6) uses multiple steel alloy hammers that are rotated by an electric motor and impacted against the material to be shredded. Water is injected into the shredder to control the heat generated as well as to reduce emissions. The emissions from the shredder are captured by an exhaust system placed at the shredder hammer mill box. The collected air passes through a wet scrubber (A3), a mist eliminator (A5), and a moving belt dry filtering system (A4) before being emitted to atmosphere via a vertical stack (P1). The associated infeed conveyor (S7) is an electric-powered conveyor system that is loaded with infeed material by manually operated cranes; the infeed material is fed into the shredder at a regulated mass rate. Fugitive emissions due to material handling at the infeed conveyor to the shredder are abated by water spraying

Installation of New PM Emission Control Equipment at the Shredder

Currently, the shredder is almost completely surrounded by a steel frame constructed of iron beams. The proposed emission control system upgrade for the shredder includes the components described below; an engineering drawing of the proposed shredder enclosure and the specification of the Venturi scrubbers are also included in Appendix C.

- **Enclosure:** An enclosure will be completed by installing additional I-beams on the existing steel frame to fully surround the shredder; the steel frame will be covered with metal siding to create an enclosure that will fully surround the shredder.
- **Upgraded Emission Control Devices:** A capture and control system consisting of metal ducting, two electric vacuum blowers, and two venturi scrubbers. The shredder enclosure building will operate at a negative pressure as a result of a total system air flow rate of up to 150,000 cubic feet per minute (cfm). Targeted air collection hoods will be installed and positioned within the enclosure to extract air from within the enclosure and remove fugitive emissions prior to discharging clean air via the stack.

² CEQA Initial Study, Modification of Schnitzer Steel Products Co. Permit to Operate Plant #208 (Permit Application #16721, BAAQMD, 12/4/2008, see <http://www.baaqmd.gov/Divisions/Engineering/Public-Notices-on-Permits/2009/011509-16721/Schnitzer-Steel-Products-Company.aspx>.

³ BAAQMD Permit to Operate (PTO) for Schnitzer Steel Products Company (A0208), expires 11/1/2016.

The proposed emission control system described above will replace the current exhaust system and emission control equipment at the shredder, including the wet scrubber (A3), the mist eliminator (A5), the moving belt dry filtering system (A4), and the vertical stack (P1). However, the existing water spray system (A6) will remain to control the heat generated and fugitive emissions at the shredder hammermill box. The specification of the Venturi scrubbers is included in Appendix C; engineering drawings of the proposed new upgraded emission control system is included in Appendix D.

2. Magnetic Drum Separators

Installation of a small floorless building over the magnetic separators

As described earlier, shredded material from the shredder is first carried by conveyor under magnetized drums where the bulk of the ferrous materials is separated from the nonferrous materials. A small floorless building will be constructed over the magnetic separators to reduce cross winds so that fugitive dust generated by the drum separators will be allowed to settle beneath the building.

Since the proposed small floorless building for the magnetic drum separators will not be an emission source and it will not affect the emissions from the magnetic drum separator (or any other equipment) at the Oakland facility, the proposed building for the magnetic separators will qualify for exemption under BAAQMD Rule 2-1-113.2.3.

3. Diesel Generator Set

Removal of the existing emergency diesel generator set

The emergency diesel generator set (S9) was installed to provide emergency power to the facility in the case of power outage. The diesel generator engine is rated at 300 hp, and the operation of the emergency engine is limited to 20 hours per year for maintenance and other testing (excluding emission testing) purposes. However, the equipment has not been operated since 2012. Therefore, Schnitzer Steel will remove it from the facility.

4. Fly Ash Silo

The fly ash silo is abated by a pulse jet baghouse (A10), and the emissions from the fly ash silo are vented at a stack (P10). The throughput for the fly ash silo in the current permit is limited to 21,900 tons of fly ash in any consecutive 12-month period. The fly ash silo will continue to operate in accordance to the existing permit condition; no change is proposed for this equipment.

5. Joint Products Plant (JPP)

After the shredded material passes over magnets to separate ferrous and non-ferrous material, the NFR is routed into the existing JPP for further processing. At the JPP, the NFR is loaded onto a conveyor to trommels that split the NFR material into two material streams by size. The conveyor at the JPP is an electric-powered conveyor system, where the infeed material is loaded at the JPP at a regulated rate. Fugitive emissions due to

material handling at the conveyor to the JPP are abated by the initial moisture content of the NFR, water spraying, and process conveyor covers.

Installation of New PM Emission Control Equipment at the JPP

Currently, about 80% of the JPP processing equipment is located outdoors, and the remaining 20% of the JPP processing equipment is located within the southeastern portion of the facility's large warehouse. The proposed new emission control system will enclose the outdoor portion of the JPP. A building will be constructed to house the outdoor JPP equipment, and a PM capture and control system will be installed and integrated with the new building. The PM capture and control system is expected to resemble a standard ventilation system, but would operate under vacuum (extraction) conditions rather than to exhaust air. Air would be collected within the new building and routed to a baghouse to control PM.

The emission sources at the JPP qualify for the exemption under BAAQMD 2-1-115, and the proposed JPP enclosure includes only the JPP equipment (i.e., exempt emission sources), the proposed PM emission control systems for the JPP will be exempt from the permitting requirement pursuant to BAAQMD Rule 2-1-113 Section 2.4. A separate document containing the detailed analysis for the JPP will be submitted to BAAQMD separately⁴.

Section 301 of Rule 2-1 specifies that any facility installing non-exempt equipment that causes or controls the emission of air pollutants must first obtain an ATC from the District. Since the PM emission control equipment at the JPP and the magnetic drum separators is exempt, Schnitzer Steel is submitting this ATC application for the proposed upgraded emission control system for the shredder.

⁴ A detailed analysis is provided in a separate submittal, *Proposed Emission Control for the Joint Products Plant, Schnitzer Steel Metal Recycling Facility, Oakland, California*, to be submitted to the BAAQMD.

IV. EMISSION CALCULATIONS

A. Criteria Pollutants

Emissions from the shredder include PM, volatile organic compounds (VOC), and toxic air contaminants (TACs)/hazardous air pollutants (HAPs). As discussed above, the initial Permit to Operate (PTO) for the shredder was issued by the District on April 26, 2007. Because no source test data were available for the S-6 Shredder at the time the permit was issued, the initial permitted emissions limits were based on emission factors for similar shredder operations obtained from a report prepared by Versar, Inc.⁵ (Versar Report). In 2007, emission source tests were performed at the exhaust stack of the existing shredder emission control system at the Oakland facility to determine the emissions associated with this equipment (2007 Source Test).

As described above, the existing emission control system, with the exception of the water spray system within the shredder hammermill box (A6), will be replaced by the proposed upgraded emission control system. The proposed new upgraded emission control system is expected to operate at a significantly higher efficiency than the existing emission control system. Due to the significant improvement in the capture efficiency of the upgraded system, emissions that are currently released as fugitive emissions (and which were therefore not measured in the 2007 Source Test) will now be captured and may result in higher PM stack emissions than those measured in 2007 Source Test. However, this increase in capture efficiency will ensure that total shredder PM emissions (stack and fugitive) will not increase after the installation of the proposed upgraded emission control system. There will be no changes in the design, configuration, or operation of the shredder. In fact, there will be an overall reduction in shredder PM emissions, as the upgraded emission control system will collect and control previously uncontrolled fugitive emissions.

Schnitzer Steel certifies in this application that, for all pollutants, the proposed upgraded abatement system is as efficient as, or more efficient than, the existing abatement system being replaced [i.e., the wet scrubber (A3), a mist eliminator (A5), and a moving belt dry filtering system (A4)]. Due to the unique nature of the emission source and abatement system design, Schnitzer Steel proposes that the estimated PM emission data included in this application be re-evaluated based on the initial source testing that will be performed after the new emission control system is installed. Specifically, Schnitzer Steel proposes to conduct PM emission tests at the shredder prior to and after the installation of the proposed upgraded emission control system in order to provide a reliable estimate of the actual reduction in PM emissions associated with the new equipment. Proposed permit language related to this specific requirement is included in Section VI.

For the purposes of this application, Schnitzer proposes to use emission factors based on best engineering estimates and data from source tests at other similar facilities, as shown

⁵ *Title V Applicability Workbook*, prepared by Versar, Inc. for the Institute of Scrap Recycling Industries, Inc. (ISRI), 1996.

in Table 1. Due to the unique nature of the emission source and abatement system design, Schnitzer Steel cannot provide an accurate estimate of total emissions (stack and fugitive) from the shredder at this time. However, the emission calculations presented in Tables 1 and 2 are based on best engineering estimates and available source test data from other similar facilities.

Table 1		
Emission Calculations for the Shredder (S6) at the Oakland Facility		
Pollutant	Emission Factors (lb/ton)	Annual Emissions ^a (tpy)
Proposed Upgraded Abatement System		
POC ^b	0.08	28.80
PM ^{c,d}	0.0080	2.88
PM ₁₀ ^d	0.0041	1.47
PM _{2.5} ^d	0.0012	0.43

- Annual emissions are calculated based on maximum annual throughput in BAAQMD PTO.
- Available POC emission factors range from 0.00137 lb/ton (Versar Report) to 0.247 lb/ton ("Draft Air Pollutant Permit-to-install and Operate" issued by the Ohio EPA to Omnisource Corp., 7/31/2008). The value provided is the best engineering estimate, reflecting a substantial amount of uncertainty due to shredder configuration and variability in the type of material shredded at the Oakland facility, and will be re-evaluated based on the initial source test after installation of the proposed upgraded emission control system.
- Available PM emission factors range from 0.00257 lb/ton (Versar Report) to 0.0192 lb/ton (source test data from a similar facility). The value provided is the best engineering estimate, and will be re-evaluated based on the initial source test after installation of the proposed upgraded emission control system.
- PM₁₀ and PM_{2.5} emission factors are estimated based on the generalized particle size distribution, Category 3 of Appendix B.2, EPA AP-42. PM₁₀ is 51% of the total PM and PM_{2.5} is 15% of the total PM.

B. Toxic Air Contaminants (TAC) Emission Calculations

TAC emissions from the shredder will remain the same, or will be reduced, after the installation of the proposed upgraded PM emission control system. Although TAC emission was also measured in the 2007 source test, TAC emissions from the shredder in this application were conservatively estimated using emission factors from the Versar Report since they were used in the permit review for the PTO of the shredder. Estimated TAC emissions are summarized in Table 2. Detailed emission calculations are included in Appendix E.

Table 2		
TAC Emission Calculations for the Shredder (S6) at the Oakland Facility		
Pollutant	Emission Factors ^a (lb/ton)	Emissions (lb/year)
Total Chromium (Cr)	1.37E-05	9.86
Chromium (VI) (Cr(VI)) ^b	3.98E-07	0.29
Total PCBs	8.74E-05	62.93
Benzene	4.00E-04	288.00
TOTAL HAPs ^c (tpy)		0.18

- a. Based on "Title V Applicability Workbook", prepared by Versar, Inc. for the Institute of Scrap Recycling Industries, Inc. (ISRI), 1996.
- b. Specific emission factor for Cr(VI) is not available in the Versar report. Cr(VI) is estimated to be 3% of the total Cr based on results in the report for the Initial Emission Compliance Test, Scrap Metal Shredder, Schnitzer Steel Products, Oakland, CA, by Avogadro Group, 3/28/2007.
- c. Pursuant to BAAQMD Rule 2-1-215, a pollutant is classified as a hazardous air pollutants (HAP) if is listed pursuant to Section 112(b) of the federal Clean Air Act. Chromium compounds, PCBs, and benzene are all classified as HAPs.

V. COMPLIANCE WITH APPLICABLE REQUIREMENTS

Section 304 of Rule 2-1 (General Requirements) requires applicants to demonstrate compliance with applicable District, state, and federal requirements. District requirements applicable to the proposed PM emission control system for the shredder at the Oakland facility include those listed below.

A. New Source Review

The requirements of BAAQMD Rule 2-2 are outlined below.

1. Best Available Control Technology (BACT) Requirement

BAAQMD Rule 2-2-301 requires that BACT to be applied to a new or modified emissions source that has an increase in the potential to emit (PTE), on a pollutant-specific basis, exceeding 10 lb/day for precursor organic compounds (POC), non-precursor organic compounds (NPOC), NO_x, SO₂, PM₁₀, or carbon monoxide (CO). The installation of the proposed PM emission control system at the shredder will not result in any change in the POC, NPOC, NO_x, SO₂, or CO emissions. As discussed above, total PM₁₀ emissions (stack and fugitive) from the shredder will be reduced by the proposed upgraded PM abatement system. Therefore, the proposed PM emission control system will not be subject to BACT requirements.

2. Emission Offset Requirements

BAAQMD Rule 2-2-302 requires emissions offsets, on a pollutant-specific basis, at any facility with a PTE in excess of 35 tons/year for POC or NO_x for a new or modified emissions source that has any increase in the potential to emit POC or NO_x. Since the proposed PM emission control system will not result an increase of POC or NO_x, it is unnecessary for Schnitzer Steel to acquire NO_x or POC offsets

BAAQMD Rule 2-2-303 requires, on a pollutant-specific basis, offsets at any major facility for a new or modified source that results in a cumulative increase of more than 1 ton/year for PM₁₀ or SO₂.

Since the proposed PM emission control system for the shredder will not result an increase in PM₁₀ or SO₂ emissions, it will not be subject to the offset requirements for PM₁₀ or SO₂.

3. Maximum Available Control Technology for Toxics (MACT) Requirement

Based on BAAQMD Rule 2-2-114 Section 114.1, the MACT requirement will be exempt if the combined increase in potential to emit from all related sources in a proposed construction or modification is less than 10 tons per year of any HAP and less than 25 tons per year for any combination of HAPs. Because the proposed PM emission control system for the shredder will not result an increase in HAPs emissions, exemption under

BAAQMD Rule 2-2-114 Section 114.1 will apply and the project will not be subject to the MACT requirements under BAAQMD Rule 2-2-317.

4. Prevention of Significant Deterioration (PSD) Requirements

BAAQMD Rule 2-2-304 requires the applicant to perform an air quality modeling analysis if the cumulative increase from the PSD Baseline Date minus the contemporaneous emission reduction credits for the major modification of a major facility is in excess of the limits listed below.

- POC: 40 tons/year
- NO₂: 40 tons/year
- SO₂: 40 tons/year
- PM₁₀: 15 tons/year
- CO: 100 tons/year

In addition, Rule 2-2-305 requires CO modeling for a major modification of a major facility that will cause an increase of 100 tpy or more.

Since there will be no emission increase from the proposed PM emission control system, the project will not be a major modification. As a result, the PSD air quality modeling analyses under Rules 2-2-304 and 2-2-305 will not be required.

B. New Source Review for Toxic Air Contaminants

BAAQMD Rule 2-5 requires a Health Risk Screening Analysis (HRSA) for a modified source of TACs, and Rule 2-5-301 requires Toxics BACT (TBACT) for any new or modified source of TACs where the source results in a cancer risk greater than 1.0 in one million (10^{-6}) and/or a chronic hazard index greater than 0.20.

Since the proposed PM emission control system at the shredder will not result in any increase in the TAC/HAP emissions, the proposed PM emission control system will not be subject to the TBACT requirements and an HRSA will not be required.

C. Particulate Matter and Visible Emissions

Regulation 6 prohibits visible emissions exceeding 20% opacity (i.e., No. 1 on the Ringlemann Chart) for any period aggregating to three minutes in any one hour. The proposed new upgraded emission control system for the shredder will be operated to minimize visible emissions, and it will comply with the Regulation 6 PM opacity limit.

VI. PROPOSED PERMIT CONDITIONS

Since the emergency diesel generator set (S9) will be removed from the Oakland facility, permit condition #22820, related to the operation of this generator set, should be removed from the PTO.

Schnitzer Steel suggests the following permit conditions for PM source testing that will be performed prior to and after the installation of the proposed upgraded abatement system.

- (1) Prior to the installation of the upgraded PM abatement system, the owner/operator shall submit a protocol designed to assess existing emissions from the shredder. Sampling shall be performed simultaneously at the inlet and outlet of the existing PM abatement system. The protocol shall indicate sampling locations that comply with District criteria, to the extent practicable. This protocol shall be submitted to the District for approval no less than 45 days prior to the date scheduled for the test. After the protocol has been approved, the owner/operator shall conduct a PM emission source test to assess PM emissions from the shredder using the approved testing procedures in the protocol.
- (2) Not later than 60 days after the initial operation of the upgraded PM abatement system, the owner/operator shall conduct District approved source tests to assess PM emissions from the shredder. Sampling shall be performed simultaneously at the inlet and outlet of the upgraded PM abatement system. The owner/operator shall submit the source test results to the District staff no later than 60 days after the source test. Based on the results of the source test, the owner/operator shall propose maximum hourly mass emission rates for stack P-1. Once approved by the District, the revised mass emission rates shall be established as a new emission limitation that will supersede the limits included in this permit.

The owner/operator shall obtain approval for all source test procedures from the District's Source Test Section prior to conducting any tests. The owner/operator shall comply with all applicable testing requirements as specified in Volume V of the District's Manual of Procedures. The owner/operator shall notify the District's Source Test Section, in writing, of the source test protocols and projected test dates at least 7 days prior to testing.

Appendix A

BAAQMD Application Forms

**BAY AREA AIR QUALITY MANAGEMENT DISTRICT**

939 Ellis Street, San Francisco, CA 94109

Engineering Division (415) 749-4990

www.baaqmd.gov fax (415) 749-5030

Form P-101B

Authority to Construct/

Permit to Operate

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1. Application InformationBAAQMD Plant No. 208 Company Name Schnitzer Steel Products CompanyEquipment/Project Description Installation of an enclosure and two Venturi scrubbers for the shredder**2. Plant Information** *If you have not previously been assigned a Plant Number by the District or if you want to update any plant data that you have previously supplied to the District, please complete this section.*Equipment Location Adeline St, Foot of (1101 Embarcadero West)City Oakland Zip Code 94607Mail Address P. O. Box 747City Oakland State CA Zip Code 94604Plant Contact Scott B. Sloan Title Vice President - EnvironmentalTelephone (425) 420 1863 Fax (425) 489 1470 Email ssloan@schn.comNAICS (North American Industry Classification System) see www.census.gov/epcd/naics02/naico602.htm 423930**3. Proximity to a School (K-12)**The sources in this permit application (check one) ☐ Are ☒ Are not within 1,000 ft of the outer boundary of the nearest school.**4. Application Contact Information** *All correspondence from the District regarding this application will be sent to the plant contact unless you wish to designate a different contact for this application.*Application Contact Scott B. Sloan Title Vice President - EnvironmentalMail Address 1101 Embarcadero WestCity Oakland State CA Zip Code 94607Telephone (425) 420 1863 Fax (425) 489 1470 Email ssloan@schn.com**5. Additional Information** *The following additional information is required for all permit applications and should be included with your submittal. Failure to provide this information may delay the review of your application. Please indicate that each item has been addressed by checking the box. Contact the Engineering Division if you need assistance.*

- ☐ If a new Plant, a local street map showing the location of your business
- ☒ A facility map, drawn roughly to scale, that locates the equipment and its emission points
- ☒ Completed data form(s) and a pollutant flow diagram for each piece of equipment.
(See www.baaqmd.gov/Forms/Engineering.aspx)
- ☒ Project/equipment description, manufacturer's data
- ☒ Discussion and/or calculations of the emissions of air pollutants from the equipment

6. Trade Secrets *Under the California Public Records Act, all information in your permit application will be considered a matter of public record and may be disclosed to a third party. If you wish to keep certain items separate as specified in Regulation 2, Rule 1, Section 202.7, please complete the following steps.*

- ☒ Each page containing trade secret information must be labeled "trade secret" with the trade secret information clearly marked.
- ☒ A second copy, with trade secret information blanked out, marked "public copy" must be provided.
- ☒ For each item asserted to be trade secret, you must provide a statement which provides the basis for your claim.

7. Small Business Certification You are entitled to a reduced permit fee if you qualify as a small business as defined in Regulation 3. In order to qualify, you must certify that your business meets all of the following criteria:

- ☐ The business does not employ more than 10 persons and its gross annual income does not exceed \$750,000.
- ☐ And the business is not an affiliate of a non-small business. (Note: a non-small business employs more than 10 persons and/or its gross income exceeds \$750,000.)

8. Green Business Certification You are entitled to a reduced permit fee if you qualify as a green business as defined in Regulation 3. In order to qualify, you must certify that your business meets all of the following criteria:

- ☐ The business has been certified under the Bay Area Green Business Program coordinated by the Association of Bay Area Governments and implemented by participating counties.
- ☐ A copy of the certification is included.

9. Accelerated Permitting The Accelerated Permitting Program entitles you to install and operate qualifying sources of air pollution and abatement equipment **without waiting for the District to issue a Permit to Operate**. To participate in this program you must certify that your project will meet all of the following criteria. Please acknowledge each item by checking each box.

- ☐ Uncontrolled emissions of any single pollutant are each less than 10 lb/highest day, or the equipment has been precertified by the BAAQMD.
- ☐ Emissions of toxic compounds do not exceed the trigger levels identified in Table 2-5-1 (see Regulation 2, Rule 5).
- ☐ The source is not a diesel engine.
- ☐ The project is not subject to public notice requirements (the source is either more than 1000 ft. from the nearest school, or the source does not emit any toxic compound in Table 2-5-1).
- ☐ For replacement of abatement equipment, the new equipment must have an equal or greater overall abatement efficiency for all pollutants than the equipment being replaced.
- ☐ For alterations of existing sources, for all pollutants the alteration does not result in an increase in emissions.
- ☐ Payment of applicable fees (the minimum permit fee to install and operate each source). See Regulation 3 or contact the Engineering Division for help in determining your fees.

10. CEQA Please answer the following questions pertaining to CEQA (California Environmental Quality Act).

- A. Has another public agency prepared, required preparation of, or issued a notice regarding preparation of a California Environmental Quality Act (CEQA) document (initial study, negative declaration, environmental impact report, or other CEQA document) that analyzes impacts of this project or another project of which it is a part or to which it is related? ☒ YES ☐ NO If no, go to section 10B.

Describe the document or notice, preparer, and date of document or expected date of completion:

Negative Declaration/Mitigated Negative Declaration by Port of Oakland

- B. List and describe any other permits or agency approvals required for this project by city, regional, state or federal agencies:

Building permit - City of Oakland

- C. List and describe all other prior or current projects for which either of the following statements is true: (1) the project that is the subject of this application could not be undertaken without the project listed below, (2) the project listed below could not be undertaken without the project that is the subject of this application:

N/A

11. Certification I hereby certify that all information contained herein is true and correct. (Please sign and date this form)

Scott B. Sloan

Vice President - Enviro



2-11-16

Name of person certifying (print)

Title of person certifying

Signature of person certifying

Date

Send all application materials to the BAAQMD Engineering Division, 939 Ellis Street, San Francisco, CA 94109.



Data Form A
ABATEMENT DEVICE

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

939 Ellis Street . . . San Francisco, CA 94109 . . . (415) 749-4990 . . . FAX (415) 749-5030

--	--

for office use only

Abatement Device: Equipment/process whose primary purpose is to reduce the quantity of pollutant(s) emitted to the atmosphere.

1. Business Name: Schnitzer Steel Products Company Plant No: 208
(If unknown, leave blank)
2. Name or Description Venturi Scrubber Abatement Device No: A- 11
3. Make, Model, and Rated Capacity Sly Venturi Scrubbers Model #12
4. Abatement Device Code (See table*) 46 Date of Initial Operation _____
5. With regard to air pollutant flow into this abatement device, what sources(s) and/or abatement device(s) are **immediately** upstream?
- S- 6 S- _____ S- _____ S- _____ S- _____
S- _____ A- _____ A- _____ A- _____ A- _____ A- _____
6. Typical gas stream temperature at inlet: 105 °F

If this form is being submitted as part of an application for an **Authority to Construct**, completion of the following table is mandatory. If not, and the Abatement Device is *already in operation*, completion of the table is requested but not required.

	Pollutant	Weight Percent Reduction (at typical operation)	Basis Codes (See Table**)
7.	Particulate	99%	3
8.	Organics		
9.	Nitrogen Oxides (as NO ₂)		
10.	Sulfur Dioxide		
11.	Carbon Monoxide		
12.	Other:		
13.	Other:		

14. ☐ Check box if this Abatement Device burns fuel; complete lines 1, 2 and 15-36 on Form C (using the Abatement Device No. above for the Source No.) and attach to this form.

15. With regard to air pollutant flow from this abatement device, what sources(s), abatement device(s) and/or emission point(s) are **immediately** downstream?

S- _____ A- _____ A- _____ A- _____ P- 1 P- _____

Person completing this form: Chinghang (Candy) Tong

Date: 1/26/2016

P:\www\FormA (revised: 7/99)

ED_005600_00000356-00021



Data Form A
ABATEMENT DEVICE

BAY AREA AIR QUALITY MANAGEMENT DISTRICT

939 Ellis Street . . . San Francisco, CA 94109 . . . (415) 749-4990 . . . FAX (415) 749-5030

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for office use only

Abatement Device: Equipment/process whose primary purpose is to reduce the quantity of pollutant(s) emitted to the atmosphere.

1. Business Name: Schnitzer Steel Products Company Plant No: 208
(If unknown, leave blank)
2. Name or Description Venturi Scrubber Abatement Device No: A- 12
3. Make, Model, and Rated Capacity Sly Venturi Scrubbers Model #12
4. Abatement Device Code (See table*) 46 Date of Initial Operation _____
5. With regard to air pollutant flow into this abatement device, what sources(s) and/or abatement device(s) are **immediately** upstream?
- S- 6 S- _____ S- _____ S- _____ S- _____
S- _____ A- _____ A- _____ A- _____ A- _____ A- _____
6. Typical gas stream temperature at inlet: 105 °F

If this form is being submitted as part of an application for an **Authority to Construct**, completion of the following table is mandatory. If not, and the Abatement Device is *already in operation*, completion of the table is requested but not required.

	Pollutant	Weight Percent Reduction (at typical operation)	Basis Codes (See Table**)
7.	Particulate	99%	3
8.	Organics		
9.	Nitrogen Oxides (as NO ₂)		
10.	Sulfur Dioxide		
11.	Carbon Monoxide		
12.	Other:		
13.	Other:		

14. ☐ Check box if this Abatement Device burns fuel; complete lines 1, 2 and 15-36 on Form C (using the Abatement Device No. above for the Source No.) and attach to this form.

15. With regard to air pollutant flow from this abatement device, what sources(s), abatement device(s) and/or emission point(s) are **immediately** downstream?

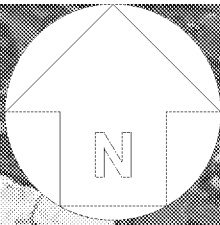
S- _____ A- _____ A- _____ A- _____ P- 1 P- _____

Person completing this form: Chinghang (Candy) Tong

Date: 1/26/2016

Appendix B

Facility and Project Locations



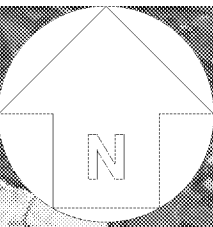
**Schnitzer Steel
Oakland Facility**

**Port of Oakland APL/
Roundhouse Property**

**Port of Oakland
Howard Terminal**



**Proposed Enclosure Projects-2016
Vicinity Map**



**Approximate Footprint of
Proposed Joint Product Plant
Enclosure and Emission Controls**

**Approximate Footprint of
Proposed Shredder Enclosure and
Emission Controls**

**Approximate Footprint of
Proposed Drum Magnet
Line Enclosure**

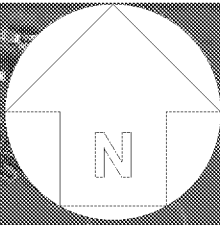


© 2015 Google



**Proposed Enclosure Projects-2016
Footprint-Vicinity View**

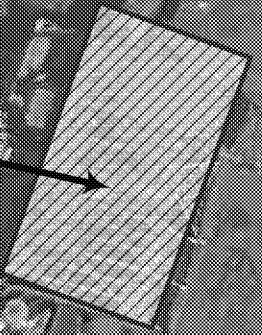
1993



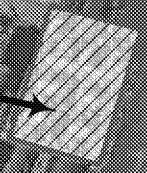
**Approximate Footprint of
Proposed Joint Product Plant
Enclosure and Emission Controls**



**Approximate Footprint of
Proposed Shredder Enclosure and
Emission Controls**

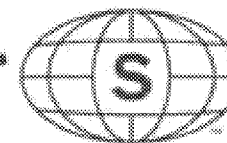


**Approximate Footprint of
Proposed Drum Magnet
Line Enclosure**



© 2015 Google

Schnitzer

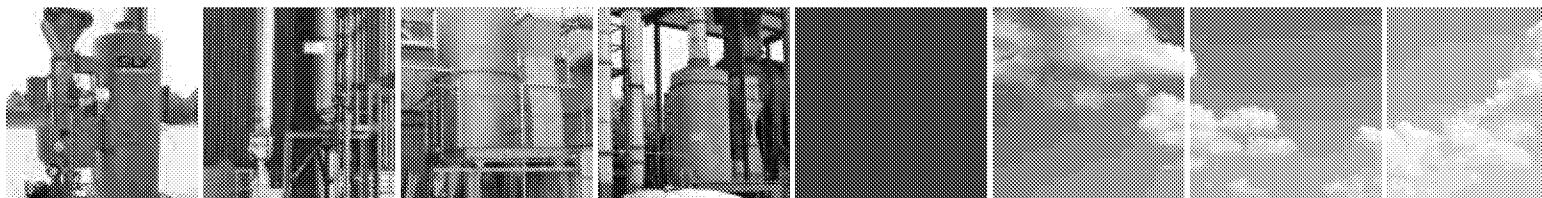


**Proposed Enclosure Projects-2016
Footprint-Enlarged View**

Appendix C

Equipment Information of the Proposed PM Emission Controls for the Shredder

Venturi Scrubbers

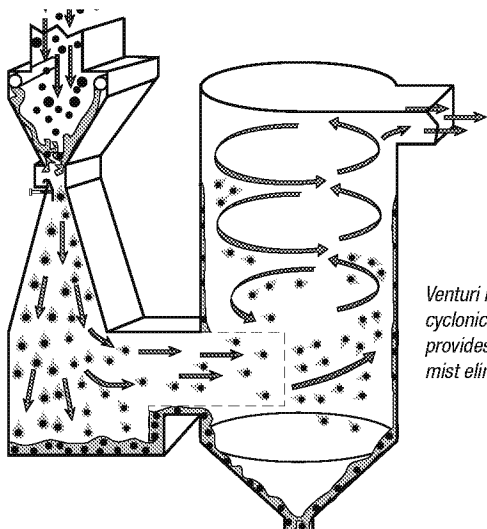


Collect Ultrafine Particles & Mists

The Venturi Scrubber uses the differential between high velocity gases and free-flowing water to create droplets which entrap contaminants, hold them in suspension and deliver them as a slurry.

Unsurpassed for Separating and Recovering Liquid Mists and Ultrafine Particulate

Simple in design, yet highly efficient, the Sly Venturi Scrubber incorporates features proven to maximize collection efficiency while minimizing operating and maintenance costs. The Sly Venturi Scrubber offers a non-plugging, trouble-free method of introducing scrubbing liquid, a simple, easily-adjusted throat for optimizing efficiency, and a flooded elbow arrangement that collects agglomerated particulate while providing an abrasion-resistant barrier to deter scrubber wear.



Venturi is coupled with a cyclonic separator which provides non-clogging mist elimination.

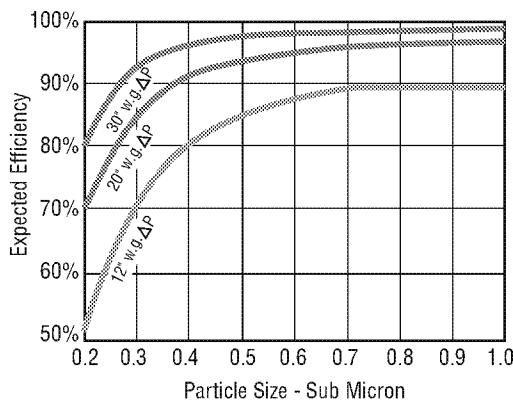
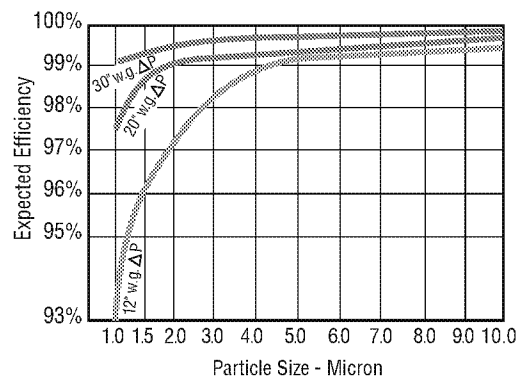
Cleans and Reclaims

The Sly Venturi Scrubber removes pollutants present in process gas streams. This includes removing hazardous and nuisance dusts, fumes and mists from stack gases.

Highlights

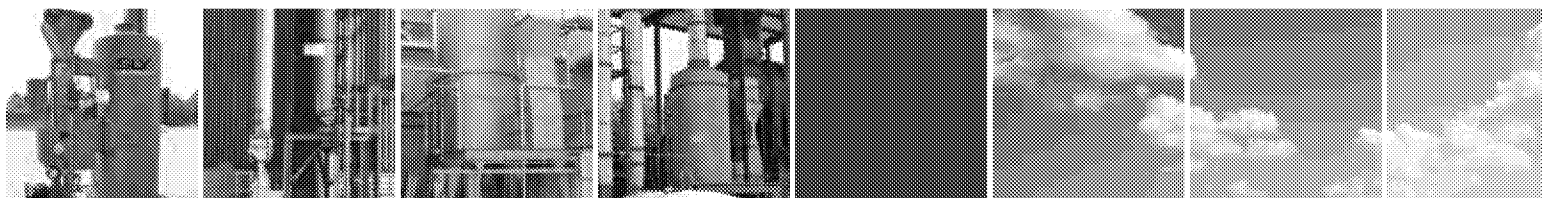
- Handles combustible dusts safely, without modifications
- Collects fine particles & mists
- Adjustable throat permits fine-tuning to maximize efficiency
- High efficiencies for sub-micron particulate
- Water requirements are typically 8 GPM per 1000 CFM
- Capacities from 1500 to 150,000 CFM
- Pressure drops from 12" w.g. to 40" w.g.
- Emission warranties available

Sly Venturi Scrubber Efficiencies



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Venturi Scrubbers

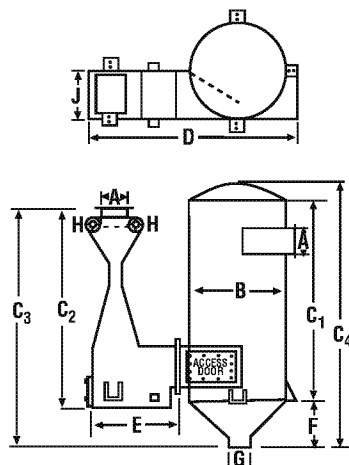


Standard Equipment

- Wetted approach inlet
- Removable liquid distributors (no spray nozzles used)
- Manually adjustable throat
- Flooded elbow
- Adjustable cyclonic spin damper
- Access doors (bolted)
- Carbon steel/stainless steel construction

Optional Equipment and Features

- Stainless steel, high alloy, FRP or plastic construction
- Combination units (Venturi/packed tower) available
- Auto adjustable throat positioner
- Quick opening doors
- Recirculation tanks
- Pumps
- Exhaust fans
- Instruments



Venturi Scrubber Capacities & Dimensions

Size	Nominal Capacity Sat. CFM	Inlet & Outlet A	Sep. Dia. B	Sep. C ₁	Vent C ₂	Vent C ₃	Sep C ₄	Overall Width D	Venturi Width E	Sep. Cone F	Drain Pipe G	Water Pipe H	Venturi Depth J
0.5	1,500/2,600	10x10	2'-2"	4'-4"	5'-8"	* 6'-0"	5'-2"	5'-6"	2'-4"	10"	2"	2"	11"
1	2,600/3,600	13x13	3'-8"	6'-6"	6'-6"	7'-3"	7'-10"	6'-8"	2'-4"	1'-4"	3"	2"	1'-5"
2	3,600/4,700	15x15	4'-1"	7'-2"	6'-9"	7'-7"	8'-7"	7'-3"	2'-6"	1'-5"	4"	2"	1'-5"
3	4,700/6,300	17x17	4'-8"	8'-2"	7'-3"	8'-3"	9'-9"	8'	2'-11"	1'-7"	4"	2"	1'-9"
4	6,300/8,500	20x20	5'-3"	9'-1"	7'-9"	8'-11"	10'-10"	8'-11"	3'-2"	1'-9"	4"	2"	1'-9"
5	8,500/11,500	23x23	5'-11"	10'-4"	8'-10"	10'-2"	12'-4"	9'-11"	3'-7"	2'	6"	3"	2'-4"
6	11,500/15,000	26x26	6'-7"	12'-1"	9'-7"	11'-1"	14'-3"	11'	3'-11"	2'-2"	6"	3"	2'-4"
7	15,000/20,000	30x30	7'-5"	14'-1"	11'-4"	13'-1"	16'-6"	12'-6"	4'-9"	2'-5"	6"	4"	3'-1"
8	20,000/27,000	35x35	8'-4"	16'-5"	11'-11"	14'-2"	19'-3"	13'-8"	5'-1"	2'-10"	8"	4"	3'-1"
9	27,000/36,000	40x40	9'-4"	19'-0"	14'-7"	16'-11"	21'-11"	15'-8"	6'-1"	2'-11"	8"	4"	4'-5"
10	36,000/48,000	46x46	10'-6"	22'-1"	15'-4"	18'-1"	25'-5"	17'-3"	6'-6"	3'-4"	10"	6"	4'-5"
11	48,000/60,000	52x52	11'-10"	25'-7"	17'-6"	20'-7"	29'-3"	19'-4"	7'-5"	3'-8"	10"	6"	5'-10"
12	60,000/76,000	58x58	13'-4"	28'-5"	17'-7"	20'-9"	32'-7"	21'-1"	7'-5"	4'-2"	12"	6"	6'-6"

*Note: Dimension "Vent C₃" for Size 0.5 only represents the overall height of the scrubber system. For all other systems, dimension "Sep. C₄" represents the overall height.

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CLEAN ENVIRONMENT

8300 Dow Circle, Suite 600, Strongsville, OH 44136

800-334-2957

Fax: (440) 891-3210 E-mail: info@slyinc.com

Web: www.slyinc.com

Appendix D

TRADE SECRET

Engineering Drawings of the Shredder Enclosure

[REDACTED]

Appendix E

TRADE SECRET

Emission Calculations

[REDACTED]